

points

True or False

— decide if the statement is true or false, if the statement is False **CORRECT THE UNDERLINED WORD**

1.

_____ A neutron has a positive charge
2.

_____ A conductor prevents electricity from running through it
3.

_____ Current can flow only in an open circuit.
4.

_____ A switch is used to turn a circuit on or off.
5.

_____ As a current flows in a wire, it meets a certain voltage from a wire.

Match the terms with their definitions

6.

_____ Atomic particles with a negative charge
7.

_____ Circuit in which a current can follow only one path
8.

_____ material that prevents electricity from flowing
9.

_____ flow of electrons
10.

_____ Circuit in which a current can follow more than one path

NOT ALL TERMS WILL BE USED

A) Conductor

B) Electricity

C) Electron

D) Insulator

E) Parallel

F) Proton

G) Series

Calculate the following using ohm's law – show all work

I = V/R

V = IR

R = V/I

Circuit	Current (amperes) (I)	Voltage (volts) (V)	Resistance (Ohms) (R)
1	5 Amps	30 volts	11. _____
2	12. _____	15 volts	5 Ohms
3	20 Amps	13. _____	10 Ohms
4	0.5 Amps	14. _____	20 Ohms

Name _____

Multiple choice – circle the best answer

15. A car battery is an example of
a. wet cells b. dry cells
16. Which one is not a conductor?
a. Cork b. Copper c. Magnesium
17. A common type of current used in homes is
a. direct current b. Alternating current
18. The resistance in a wire will increase if
a. the thickness of the wire is decreased
b. the temperature of the wire is increased
c. the length of the wire is increased
d. all of the above
19. Electric current is measured in
a. Ohms b. Volts c. Amperes d. Newtons
20. If several appliances are connected in a series and one of the appliances stops working
a. None of the appliances will work
b. The rest of the appliances will continue to work
c. There may be a short circuit
d. The current needs to be increased

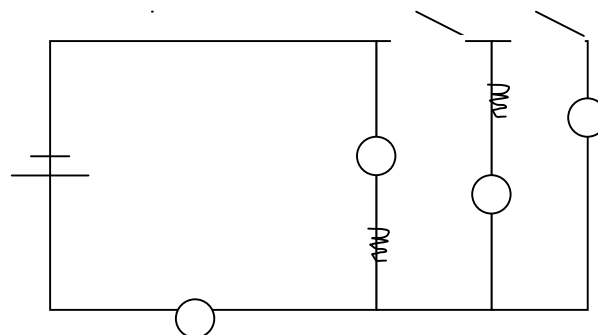
Short answer and diagram

21. What is the difference between a battery and a wall outlet?

22. (5 points) **Draw** a wet cell battery and **label** its 3 parts: electrolyte, zinc electrode (-), copper electrode (+)

23. **Label** the following parts of this circuit:

Battery
Lamp
Wire
Switch
Resistance



24. Is this a parallel or series circuit?

25. Is the circuit open or closed?

26. Create a diagram of a circuit and 4 questions (with answers) about the diagram. Two questions must include calculating either I, V or R. The other questions may be about something else in the diagram or may be calculation questions.

Diagram

Questions:

1
2
3
4

Answers to questions:

1
2
3
4

Essays and diagrams



(10 points)

Explain why, in the game *Operation*, if you touch the sides of the board with the metal tweezers the patient's nose lights up but you don't get a shock. You may answer in paragraph form or create a labeled diagram.

Include the following words: **battery**, **electricity**, **open circuit**, **closed circuit**, **insulator**, **conductor**.

Extra Credit

(5 points)



Congratulations, you've been selected to replace Richard Dean Anderson as the new MacGyver in a revival series. Yep, you now have the uncanny ability to create great inventions out of everyday things. In your first episode you have **to create a magnet capable of lifting an iron bar** that is trapping you in a storage room. Check out the diagram below to see the objects in the room. You can use any of the objects pictured to build your device. In the space provided, **explain what you are using and how you will use it** to create a STRONG magnet.

